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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/500,785 | 07/02/2004 | Ralph C. Longworth | SHI 19.325 (310010-00104) | 8468 |
| 26304 | 7590 | 09/19/2006 | EXAMINER | |
| KATTEN MUCHIN ROSENMAN LLP 575 MADISON AVENUE NEW YORK, NY 10022-2585 | | | DOERRLER, WILLIAM CHARLES | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 3744 | |

DATE MAILED: 09/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/500,785

Applicant(s)

LONGSWORTH, RALPH C.

Examiner

William C. Doerrler

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 15-18 is/are rejected.
- 7) ☒ Claim(s) 6-14 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 July 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 7-2-2004.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- ☐ Notice of Informal Patent Application
- ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In the last line, "the inlet plane" is unclear. Is the inlet plane the plane where gases enter the cryopump, or is it referring to the inlet of the pulse tube?

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-5 and 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lessard in view of Miyamoto et al.

Lessard discloses applicant's basic inventive concept, a cryopump with the coldest cryopumping surface in a plane that intersects the plane of the coldest cooling tube (inverted cup 34 intersects the plane of coldfinger 30), substantially as claimed with the exception of using a pulse tube cooler. Miyamoto et al show this feature to be old in the cryopumping art. It would have been obvious to one of ordinary skill in the art at the time of applicant's invention from the teaching of Miyamoto to modify the cryopump of

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Lessard by using a pulse tube to provide cryogenic temperatures with less vibration due to no moving parts in the tube. It is noted that Lessard uses a G-M cooler but states in line 56 of column 3 that other cooling systems may be used. Reference numeral 28 of Lessard is the first station heat sink, so the cooler of Lessard is a two stage cooler.

Claims 1-5 and 15-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bartlett in view of Miyamoto et al.

Bartlett discloses applicant's basic inventive concept, a cryopump with the coldest cryopumping surface in a plane that intersects the plane of the coldest cooling tube (Panel 36 of Bartlett's two stage cooler intersects the cooling system), substantially as claimed with the exception of using a pulse tube cooler. Miyamoto et al show this feature to be old in the cryopumping art. It would have been obvious to one of ordinary skill in the art at the time of applicant's invention from the teaching of Miyamoto to modify the cryopump of Bartlett by using a pulse tube to provide cryogenic temperatures with less vibration due to no moving parts in the tube. It is noted that Bartlett uses a G-M cooler but states in the last line of column 2 and the first line of column 3 that other cooling systems may be used.

Claims 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over either Lessard or Bartlett in view of Miyamoto et al as applied to claims 1-5 and 15-17 above, and further in view of Flegal et al.

Lessard and Bartlett, each as modified, disclose applicant's basic inventive concept, a cryopump with a cryopanel that intersects the plane with a linear pulsetube and regenerator, substantially as claimed with the exception of forming the cryopanel as

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folded plates with portions having different pitches. Flegal shows this feature to be old in the cryopumping art. It would have been obvious to one of ordinary skill in the art at the time of applicant's invention from the teaching of Flegal to modify the cryopump of either Lessard or Bartlett by using cryopanel with portions that are bent at different pitches to capture a high amount of gases without blocking the flow path.

Allowable Subject Matter

Claims 6-14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion


The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Okamura et al shows a pulse tube with a linear configuration. The Japanese reference shows a cryopump which is cooled by a multi-stage pulse tube.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William C. Doerrler whose telephone number is (571) 272-4807. The examiner can normally be reached on Monday-Friday 6:30-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl Tyler can be reached on (571) 272-4834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


William C Doerrler
Primary Examiner
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WCD